AMENDMENTS TO THE CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

Listing of Claims:

1. (Currently Amended) An apparatus for diagnosing sleep apnea, which detects a temporary cessation of breathing while a subject is sleeping by applying light to and processing light output from a predetermined part of a subject's body, the apparatus comprising:

a light source unit for sequentially generating a first light signal of a first wavelength and a second light signal of a second wavelength according to a predetermined control signal, the first wavelength and the second wavelength being different;

a photodetecting unit for detecting the first and second light signals output by the light source unit and then applied to the predetermined part of the subject's body, and for converting the detected first and second light signals into first and second electric signals;

a diagnosis unit for substantially removing a time delay between the first and second electric signals output from the photodetecting unit, for calculating a ratio ~~between~~ of DC components of the first and second electric signals, and for comparing the ratio with a predetermined reference value to diagnose sleep apnea; and

a controller for outputting the predetermined control signal to the light source unit to generate the first and second light signals, and for providing the predetermined reference value to the diagnosis unit.

2. (Original) The apparatus as claimed in claim 1, wherein the light source unit is a light emitting diode (LED) array that generates light in at least a red wavelength range and an infrared (IR) wavelength range.

3. (Original) The apparatus as claimed in claim 2, wherein the light source unit comprises:

a light source for generating the first light signal of the first wavelength and the second light signal of the second wavelength; and

a light source driver for driving the light source.

4. (Currently Amended) The apparatus as claimed in claim 2, wherein the light source unit is configured to apply ~~applies~~ the generated first and second light signals to a [[the]] predetermined part of the subject's body where an arterial pulsating component can be [[is]] measured.

5. (Original) The apparatus as claimed in claim 2, wherein the controller outputs the predetermined control signal to the light source unit to sequentially turn on and off the LED array in accordance with the wavelengths to be output.

6. (Original) The apparatus as claimed in claim 1, wherein the photodetecting unit comprises:

a photodetector for detecting the first and second light signals, which are generated by the light source unit and applied to the predetermined part of the subject's body, and for outputting first and second current signals; and

a current to voltage converter for converting the first and second current electric signals into first and second voltage electric signals.

7. (Currently Amended) The apparatus as claimed in claim 6, wherein the diagnosis unit comprises:

a multiplexer for separating the first and second electric signals output from the photodetecting unit according to the predetermined control signal;

a delay unit for sampling the separated first and second electric signals and delaying the sampled first and second electric signals for a period of time to output the sampled first and second electric signals at substantially the same time;

a divider for calculating a ratio of DC components of the sampled first and second electric signals output from the delay unit; and

a comparator for comparing the calculated ratio with the predetermined reference value to determine the presence or absence of sleep apnea.

8. (Original) The apparatus as claimed in claim 7, wherein the delay unit comprises:

a sample-and-holder for sampling signals output from the multiplexer; and

an amplifier for amplifying a signal from the sample-and-holder.

9. (Currently Amended) The apparatus as claimed in claim 1, wherein the diagnosis unit comprises:

a multiplexer for separating the first and second electric signals output from the photodetecting unit according to the predetermined control signal;

a delay unit for sampling the separated first and second electric signals and delaying the sampled first and second electric signals for a period of time to output the sampled first and second electric signals at substantially the same time;

a divider for calculating a ratio of DC components of the sampled first and second electric signals output from the delay unit; and

a comparator for comparing the calculated ratio with the predetermined reference value to determine the presence or absence of sleep apnea.

10. (Original) The apparatus as claimed in claim 9, wherein the delay unit comprises:

a sample-and-holder for sampling signals output from the multiplexer; and

an amplifier for amplifying a signal from the sample-and-holder.

11. (Currently Amended) A method of diagnosing sleep apnea, which detects a temporary cessation of breathing while a subject is sleeping by applying light to and processing light output from a predetermined part of the subject's body, the method comprising:

(a) sequentially generating a first light signal of a first wavelength and a second light signal of a second wavelength, the first wavelength and the second wavelength being different ~~difference~~;

(b) applying the first and second light signals to the predetermined part of the subject's body;

(c) detecting the first and second light signals from the predetermined part and converting the first and second light signals into first and second electric signals;

(d) sampling the converted first and second electric signals and respectively delaying the sampled first and second electric signals to substantially remove a time difference between the sampled first and second electric signals; and

(e) calculating a ratio of DC components of the first and second electric signals and comparing the calculated ratio with a predetermined reference value to determine the presence or absence of sleep apnea.

12. (Original) The method as claimed in claim 11, wherein the first wavelength is in a red wavelength range and the second wavelength is in an IR wavelength range.

13. (Currently Amended) The method as claimed in claim 11, wherein applying the first and second light signals comprises applying the first and second light signals to a [[the]] predetermined part of the subject's body where an arterial pulsating component can be [[is]] measured.

14. (Currently Amended) The method as claimed in claim 12, wherein applying the first and second light signals comprises applying the first and second light signals to a [[the]] predetermined part of the subject's body where an arterial pulsating component can be [[is]] measured.

15. (Currently Amended) The method as claimed in claim 11, wherein the predetermined reference value is a predetermined ~~after the~~ ratio of DC components of the electric signals~~, which are sampled in a normal breathing state and a breathing cessation state, is calculated several times, a value from among the calculated ratios is provided as the predetermined reference value~~.

16. (New) The apparatus as claimed in claim 1, wherein the first electric signal corresponds to a detected red light signal,

the second electric signal corresponds to a detected infrared light signal, and

the ratio of DC components of the first and second electric signals is one of: (DC_{IR}/DC_{red}) and (DC_{red}/DC_{IR}), where DC_{red} is a DC component of the first electric signal and DC_{IR} is a DC component the second electric signal.

17. (New) The method as claimed in claim 11, wherein the predetermined reference value is a predetermined ratio of DC components of the first and second electric signals.

18. (New) The method as claimed in claim 12, wherein the first electric signal corresponds to a detected red light signal,

the second electric signal corresponds to a detected infrared light signal, and

the ratio of DC components of the first and second electric signals is one of: (DC_{IR}/DC_{red}) and (DC_{red}/DC_{IR}), where DC_{red} is a DC component of the first electric signal and DC_{IR} is a DC component the second electric signal.

19. (New) The method as claimed in claim 18, wherein the predetermined reference value is one of: a predetermined ratio of (DC_{IR}/DC_{red}) and a predetermined ratio of (DC_{red}/DC_{IR}).